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ABSTRACT

This paper presents an overview of recent psychological research relevant to the assessment and instruction of culturally and linguistically different students. First, general research by cross-cultural psychologists is described, focusing on the observation that types of thinking and learning behavior are influenced by social organization and environment. Analytical thinking and field independent behavior, for example, are said to be associated with industrial societies, while relational thinking and field dependence are associated with rural and minority cultures. Next, the paper surveys different types of assessment instruments. Many of these testing devices have fallen out of favor, and factors to be considered in choosing and administering assessment tests are outlined. These include: (1) purpose of test; (2) results of test; (3) norming population; (4) language dominance and language proficiency; and (5) previous instruction. Different tests and research related to each of these factors are discussed. The paper describes various teaching techniques that can be adapted for multicultural classrooms. These include: mathemagenics for directing learner attention to broad generalizations or specific culturally relevant details; learning through observation; the use of the kinesthetic modality in combination with visual and auditory modalities; and developing heuristic methods for problem solving. (KH)

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IMPLICATIONS OF PSYCHOLOGICAL RESEARCH FOR ASSESSMENT AND INSTRUCTION OF THE CULTURALLY DIFFERENT

BILINGUAL MULTICULTURAL
EDUCATION TRAINING PROJECT
FOR SCHOOL PSYCHOLOGISTS
AND GUIDANCE COUNSELORS

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IMPLICATIONS OF PSYCHOLOGICAL RESEARCH FOR ASSESSMENT AND INSTRUCTION OF THE CULTURALLY DIFFERENT

Assessment and instruction of English speaking school age children in the United States have been a matter of controversy. Since the rebirth of bilingual education in 1963, evaluative procedures for those whose first language is not English have been a major area of concern (Cummins, 1980a, 1980b). The recent increase in the number of immigrants from Southeast Asia and Latin America heightened the problem (Refugee Report). One way in which researchers and practitioners have sought to solve the inherent testing problems is to focus on a variety of aspects involved in assessment, such as cultural bias, differences in cognitive and perceptual styles, and the influence of culture on learning and assessment. Although a considerable body of information on these topics has been amassed on these topics and those who work with limited English proficient students have become more aware of the problems, the area of bilingual language and cognitive assessment is still fertile ground for substantial improvement. (For a review of the state of the art, see Ambert, 1982; Fradd, 1983).

A considerable amount of psychological research has been undertaken during the past several years which has not directly focused on the assessment of the culturally and linguistically different, but is relevant to the topic. When these studies are considered from a multicultural perspective, much of this research potential for impacting on educational assessment in multicultural settings. It is true that a great deal of research is still needed. However, the considerable amount of data now available on English speaking populations should not be considered as irrelevant merely because it has been limited to one language. (For a review of some of the emergent research, see Bransford, 1979).

The purpose of this article is to present selected relevant research findings and to indicate some implications of such psychological research for the assessment and instruction of the culturally different.

Adjusting the Evaluation Criteria to the Cultural Context

Imagine a clear, moonlit night, the waves softly slapping the sides of the outrigger canoe. The navigator has 100 miles to travel to his small island home in the Pacific Ocean. He enjoys the trip with the companionship of fellow islanders even though he knows that their well-being depends on his ability to guide the boat safely home. The island to which he is returning is only a half mile across; he must be certain of his course or he will miss the island completely to be lost in the vast expanse of the Pacific. His assessment test is to safely navigate to his small island without the assistance of any mechanical devices whatever.

Some Polynesian navigators still travel long distances with no means to guide them other than the information they carry in their heads. They must be thoroughly familiar with the weather, waves, and other signs in nature and then be able to navigate by celestial reckoning. Chief navigators must be sensitive to every movement the boat makes. They must accurately measure the height and width of the approaching waves. Anyone who has ever sailed can realize this is no small feat.

When these navigational experts were given Piaget-type tests of reasoning ability, they were unable to accomplish what would be considered by U.S. standards, simple tasks of reasoning usually performed by twelve-year-olds (Gladwin, 1970). A limited number of the other Polynesians who were not navigators, but who lived on the same island, were able to complete these tasks. This group of islanders had completed high school on another island. Solving

puzzles and navigating the ocean both require the use of abstract thought. Several variables may account for the differences in abstract thinking which each population used successfully in the tasks they were able to accomplish. The master navigators' greatest skill was in acquiring a large body of knowledge and applying it in appropriate circumstances. The successful navigator cannot be an innovator. Changes could be made in the type of sailing cloth used on the boats but not in the methods employed in correctly maneuvering the boats. Strict adherence to an already highly developed technology of sailing was the key element of his success. The capacity to apply the correct information at the appropriate time was crucial (Gladwin, 1970).

It would be no more correct to categorize the navigators as inept because they were unable to solve puzzles than it would be to categorize the puzzle solvers as backwards because they were not successful navigators. Each had developed a set of competencies which were appropriate to their environment.

Sociocultural Referents

Problem solving is a skill required in most public schools in the United States. Determining relationships between a problem at hand and information previously obtained is the critical element to puzzle solving. The puzzle solver must have broad concepts containing smaller subsets which allow for the generalization and application of information from one situation to another. Involved in this transfer and application of information is the use of heuristics or the development of experimental problem solving techniques. Using heuristics was the antithesis of selecting a rule and applying it with a guaranteed result. Heuristics are used to solve novel problems by experimentally applying information in ways that it has not previously been applied, at least not by the learner. Schooling provides opportunities for developing heuristics. Students are provided with new information and are requested to

apply it within a variety of frameworks. Schooling encourages experimentation and structures thinking. At least this is one expectation of education. Finding the association between the problem: "Rooster is to chickens as bull is to ____," requires the problem solver to see the two groups of animals as related and to determine the relationship between them. Seeing relationship is a form of information organization.

Culture provides a background on which information is organized. Different cultures provide different linguistic and sociological references for organizing information. For example, grouping chairs and tables together because they all have four legs is an example of analytical thinking. Grouping them together because of their related utility is an example of relational thinking. Analytical type thinking is found more frequently in highly industrialized societies while relational thinking is found most often in agrarian societies. Frequently relational type thinking is also found most often in the minority and rural cultures within the industrial societies (Cohen, 1969; Curtis in Press). The example of the navigator is insightful. He applies the available information as is needed to maneuver the boat. Information processing is dependent on first-hand experience. It is not abstract or theoretical.

Information processing, sorting and storing differences have been studied by a variety of cross-cultural psychologists who observed that the social organization of the society and the environment affects learner behavior. Witkin is the most frequently cited in this field of psychology. He has worked with a number of associates to elaborate the psychological constructs of field dependence and field independence.

Field dependence is associated with relational behavior as previously described. People who manifest field dependent behavior are more aware of

people and the social environment than are field independent people. They are described as thinking globally and are considered to lack the capacity to desist from perceiving and interacting with the environment. They may need high structure and organization in order to function in school. These people prefer to interact with others rather than function on their own in the learning environment. Greater or lesser intellectual ability is not equated with either field dependence or independence.

Field independent behavior is characterized by the ability to function in an analytical, part to whole manner. People who demonstrate field independence are able to act independently of their surroundings. They require less structure and provide their own organization framework for task completion. (For an overview of this construct, see Witkin, Moore, Goodenough & Cox, 1977 and Ramirez, Herald & Castañeda, 1974.)

Adaptation of Assessment Methods

Determining the type of assessment instrument to be used depends, of course, on the purpose of the evaluation. The statement is so obvious that it goes without saying. However, a decade of court cases from all over the nation reveals that adequate and appropriate assessment procedures have not been applied, and in many cases do not exist. (See Leibowitz, 1982, for a review of legislation and legal findings and Dade County Public Schools, 1982, for recommended procedures.) Many cases of inappropriate assessment have resulted in over identification and placement of limited English proficient children in special education classes for the intellectually limited and impaired. Many similar cases all over the U.S. have resulted in the development and refinement of testing instruments and procedures. The pendulum has currently swung in the opposite direction; children in need of special services are now

referred less frequently because of the fear of charges of discrimination or testing bias. (Gelatt & Anderson, 1983, present a good overview of language assessment problems in the section on assessment.)

After a decade of researching culture-free non-biased methods of assessment, most of the tests developed in early 1970's have been discarded. Initially, it was believed that the use of pictures and other symbols would reduce the cultural bias which occurred because of language differences. Use of pictorial representations was found to produce more culturally biased assessment instruments than tests which relied on language. The first wave of such tests which utilized pictures or performance tasks rather than language has all but disappeared from the publishers' catalogues. Research reveals that there are less specific rules for interpretation of pictorial or performance items than there are for verbal items; pictorial or performance items can increase rather than decrease the element of cultural bias (Cohen, 1969).

Draw-a-Person Tests comparing Koppitz scoring (Gonzalez, 1980) with Anglo, Mexican-American, Black, Navajo, and Pueblo Indian norms in the Southwest, found that each group had its own norming patterns. While there were intergroup consistencies, there were also many differences. Evaluation using the Koppitz scoring would not be accurate for the minority students unless norms were established within the group. Anglo children in the Gonzalez study drew some elements of their pictures like the Mexican-Americans, who included more details at an earlier age, than the norms developed by Koppitz would predict.

Another assessment trend which received a great deal of attention but is beginning to fall into disfavor is use of already developed tests with specific norming standards adapted to minority populations. Some tests such as the SOMPA (System of Multicultural Pluralistic Assessment) developed by Mercer

(1976) have adjustment scales which can be utilized in interpreting scores of culturally different students. Allowance for additional time is another adaptation that can be made when testing children from cultures where time is not valued or measured by traditional standards. Testing simultaneously in two languages is an adaptation that has been utilized by some psychologists when evaluating intelligence. While the efficacy of this procedure is questionable, this adaptation requires specific population norms if the information is to be considered as standardized.

Creative behavior assessment can also provide a means for evaluating the strengths of minority children (Torrance, 1978). In a culture where material possessions are scarce, a person who refers to a baby as a "crumb crusher" and a thief as a "liberty looter" may be showing a type of conceptual relationship not usually measured on tests of intelligence (Cohen, Frankel and Brewer, 1968).

Another area of difficulty lies in the translation of tests from one language to another. Many fundamental problems beset this task. Typical word associations in one language may not be considered as appropriate in the language into which the test is being translated. Oller (1979) provides examples of the differences in intralingual and interlingual word associations (p. 91). The following chart has been adapted from his work in making associations within and between languages. The associations differ depending on which language is used as the initiator.

INTRALINGUAL		INTERLINGUAL	
English	English	English	Spanish
table	dish	table	chair
boy	girl	boy	girl
king	queen	king	queen
house	window	house	white

INTRALINGUAL		INTERLINGUAL	
Spanish	Spanish	Spanish	English
table	chair	table	chair
boy	man	boy	trousers
king	queen	king	queen
house	mother	house	mother

Frequency ratios of words and phrases vary by language. Lexicon and even concepts in one language may not exist in the language into which the items are being translated. Thus, items that are easy in one language may be difficult in the second language. Translation of tests may result in production unequivalent in instruments. Before administering any type of translation, the evaluator should screen all items carefully with a group of native speakers to elicit their reaction. An item analysis of all items missed may provide insight into problem areas.

One widely used test in English and Spanish contains an item in Spanish which asks students to tell which of four fruits would be appropriate to give to the teacher. Most Puerto Rican children chose the orange as being the most acceptable gift. Mexican-American migrant children showed no specific preference, their families had picked all the fruits pictured. The expression of "An apple for the teacher" had no meaning for either group, and did not elicit the anticipated "correct" response.

A problem found in much of the second language material produced in the U.S. is the influence of one language on the other language. A common example is in appropriate capitalization in Spanish which capitalizes fewer words, and the lack of capitals in written English. Another nationally known test asks the child literally to "Show me the heaven on the roof" in Spanish while the English request is "Show me the ceiling." Evidently the translator was using a regionalism. An evaluator using high school Spanish might not be sensitive

to these linguistic differences as they occur in "standardized" forms of tests available in other languages.

Translations skew the testing process by both the content and context of the language used. The alert evaluator may utilize information gained from this type of testing for planning educational programs. An overall evaluation, however, should be done based on translations of other English language tests.

Instead of translating tests from one language to another, the most recent work done by linguists and psychologists is the development of equivalent tests in two languages. Certain similar features are shared by all languages, yet each version of the test reflects the linguistic uniqueness and the hierarchical structure of the concepts embedded within the culture and conveyed by language.

The type of assessment used will determine the type of language produced. In comparing oral tasks of Natural Communication with Linguistic Manipulations, Burt and Dulay (1978) found that Natural Communication taps the unconscious use of grammatical rules and focuses on communicating information. Linguistic Manipulation taps conscious application of linguistic rules, and focuses on noncommunicative, artificial speech. It is in Linguistic Manipulation that adult language differs most from child language, even when they are at the same level of second language acquisition. Depending on the linguistic task, Natural Communication can be structured and unstructured.

Examples of Natural Communication and Linguistic Manipulation can illustrate the differences. Natural Communication occurs during conversations or when someone speaks extemporaneously. Questions can be structured to attempt to elicit grammatical patterns. Asking the examinee to tell about a set of pictures which would require understanding of specific lexicon and syntax would be an example of structured Natural Communication. The use of Linguistic

Manipulation includes testing which requires the examinee to imitate, translate, substitute or complete a specific linguistic pattern. Close tests, substitution drills, grammar exercises are examples of Linguistic Manipulation (see Rivera and Simich, 1981, for a review of current trends in the language testing of minority students.)

Assessment Strategies

There are many factors to be considered in the testing process. Some of the major concerns are:

1. Purpose of test - Why is this test being administered? Is the purpose of the administration consonant with the purpose for which it was developed? Care should be taken to avoid using tests that will categorize children as problem learners before they have had the opportunity to master material being tested (Cummins, 1980a).

   Studies done with Chilean students found that the impact of the culture and the educational system influenced students' test responses. In one Chilean educational system, learning through the visual-motor channel was encouraged by the practice of copying much information from the blackboards into notebooks. On tests of auditory sequential memory as in the Illinois Test of Psycholinguistic Ability or Digit Span of the Wechsler, these Chilean students consistently performed poorly (Hastings, 1981). Chileans are not the only students to be taught primarily through the practice of copying from the board.

2. Results of test - For what purposes will the results be used? Who will receive the results? Will the results enable the teachers and others involved in the child's education to plan more effectively?

Will the results be shared with the parents? Do the results measure the actual level of language functioning? Does it measure skills in interpersonal communication or skills used in global reasoning? Many times children appear to be fluent bilinguals because they have good interpersonal communication skills but they have not acquired the language skills necessary for concept acquisition (Cummins, 1980b). Are both Natural Communication and Linguistic Manipulation skill considered?

3. Norming population - Did the norming population of the test include a significant number of students from the same cultural as well as language background as those now being tested? If yes, by looking at past results, how can we expect the present population to perform on this test? If no, why not? As discussed in the Draw-A-Person tests, different language and cultural backgrounds produce children with varying degrees of proficiency in a multitude of skills.

4. Language dominance and language proficiency - Does the test take into consideration the proficiency or dominance of the child? Tests of language dominance determine which of the child's two or several languages he or she speaks best. This determination is at best a rough estimate. Pedraza and Pousada (1980) confirm that the location where the language is used and the people involved in the communication influence language dominance.

Each language may be used with equal proficiency in different situations. In using language related to the home, the child may be more fluent in the first language. In talking about school topics, he or she may be dominant in the language used at school. An

understanding of dominance and proficiency is important in differentiating between a child who needs additional assistance in language learning and one who has a more serious learning problem. For example, a child considered to have Limited English Proficiency (LEP) may also be limited in first language ability. The child may be a balanced bilingual, but not proficient in either language. Tests of language dominance and proficiency are important for increasing the likelihood of nonbiased assessment and educational placement. The first tests developed relied extensively on vocabulary. Vocabulary is very unstable and not reliable as an indicator of dominance or proficiency (see Burt and Duly, 1978, for a review of testing.) Tests must reflect the linguistic uniqueness of the language tested. Four elements of this component are domains of proficiency, dominance within domains, home language use, and language preference.

A new training program for audiologists and speech pathologists is currently being presented to bilingual professionals in the field. It will soon be available to monolinguals. (For a review of this program, see Golatt and Anderson, 1983).

5. Previous Instruction - Have students been taught the skills to be tested? Are they familiar with the test format? Are they acquainted with the people administering the test and the environment in which the test is to be administered? Have students been afforded opportunities to practice taking tests of this nature? Did they receive immediate feedback regarding the appropriateness of their answers or strategies for arriving at the correct answer? Minority students who have had warm-up sessions where they actually practice under

test-like circumstances and receive immediate feedback, have improved scores significantly. These same warm-up sessions have not produced significant changes in test scores for majority U.S. students (Bernal, 1978).

In the future more adequate assessment for the Spanish-speaking children who make up more than seventy percent of the second language population of the public schools (Brown et al., 1980) will be available. The language assessment instruments are available and evaluators are trained in using them, translation and interpretation services may be the only realistic alternative. Inservice training is needed to sensitize English as a second language and bilingual teachers to the field of special education and special education teachers to bilingual multicultural education. This must be a two-pronged bridging process so that both groups understand and utilize each other's services and skills.

Instruction Techniques

Adequate testing programs are not the only answer. Children from different cultures need specific instruction to adapt to new modes of thinking as well as speaking. Recent research is beginning to focus on the process of becoming bicultural. Children are encouraged to use the mental processes reinforced by their particular culture while developing additional strategies appropriate for new learning situations in the culure they are entering. Unfortunately, curriculum that facilitates this approach has not been fully developed and is not generally available at this time. New roles are emerging for guidance couselors and school psychologists who must become culture brokers or cultural interpreters who can assist teachers and administrators to understand the needs of the linguistically different.

A recent review of the resources available found that many booklets and periodicals talk about culture and cultural differences. Other resources

contrast mainstream U.S. culture with that of specific cultures. While limited in scope, these sources provide interesting materials such as the differences between calendars, foods or other customs. Some large-scale projects for multicultural instruction are currently being developed and field tested. One is a statewide training project being conducted by the University of Florida focusing on school psychologists, guidance counselors and occupational specialists, funded by Title VII, U.S. Department of Education.

There are many techniques that can be adapted for the multicultural classroom to facilitate concept acquisition by children from diverse cultural backgrounds. One such technique is mathemagenic.

Mathemagenics is a process of providing boundary structures for directing attention to the task or skill to be mastered. Questions are utilized to orient the reader to certain aspects of a reading text. Three factors influence learning through this strategy: the kinds of questions used, the closeness of the questions to related textual material and the position of questions in relationship to the rest of the reading passage. Questions presented before the passage usually provide the reader with a framework for directing attention to recall of specific information. Questions presented after the passage enhance the acquisition of broad concepts and are useful in analysis and synthesis of information. The techniques of using questions to direct student attention can be adapted to the specific needs of the students as well as materials to be mastered. Questions can be used to arouse interest, motivate, establish cultural relevance, and enable students to make associations with other previously mastered learning (Rothkopf, 1970; Frase, 1970).

Learning through observations (Bandura, 1977) can be another effective teaching strategy, especially for students who are shy or come from cultures where question asking is considered impolite behavior.

Consider the Seminole Indian who spends a great deal of time observing a WISC block design before attempting to make the pattern. This student might be called lazy or unmotivated because he or she did not use trial and error methods as most U.S. children do. Trial and error is not appropriate behavior. Attentions can be directed to very specific behaviors through the use of black and white pictures. These pictures depict the desired behavior. When a clear understanding of the target behavior is achieved, videotapes can be used to place the behavior within the context of the larger arena in which the behavior should occur. Videotapes can dramatically demonstrate the specific concept to be learned. At the University of Florida, kindergarten children are being videotaped to demonstrate appropriate museum behavior to other kindergarteners. This technique can be adapted for any age level or topic. Video cameras can zoom in on the details to be emphasized or provide an overview of an entire setting. Video pictures have the advantage of focusing attention on very specific information and providing a general overview. Children relate to and learn best from models with whom they can easily identify. Having a student from a target culture demonstrate a skill through video programming can enhance concept acquisition (Koran & Koran, 1981).

The use of <u>different modalities</u> to present and reinforce concepts is an area of research currently receiving much attention. It is well known that children progress from reliance on one modality to another as they develop and mature. The sequence is usually kinesthetic, visual, auditory or a combination of the latter two. Many people rely on a combination of all three depending on the task to be mastered. Again, using the example of the Polynesian navigators, the point can be made that other cultures rely much more heavily on kinesthetic learning than do people in the mainstream U.S. culture. The navigator must actually feel the movement of the waves to determine the correct

sailing course. A similar comparison can be made for race car drivers, jockeys or possible auto mechanics. Kinesthetic activities including drama, dance, pantomime and activities that employ movement may be relevant for teaching the culturally different (Asher, 1977). Learning through Learning Channels is a new program being conducted throughout the nation. It is currently designed to fit with the Florida Beginning Teacher Competencies (see Project T.E.A.C.H./ P.R.I.D.E., 1983.)

Developing heuristics for problem solving may be the most significant strategy to be employed in providing schemata which enables students to build mental bridges across cultures (Gladwin, 1970). New processes for intelligence testing involve the use of these problem-solving techniques. Time required to solve the problems, strategies employed, and the process of encoding the information are all important elements of solving problems. The metacomponents, or the higher order decision processes, are used to control the lower order mental processes. Metacomponents determine which lower order processes to be used, how to combine these processes, how to evaluate the effectiveness of the possible answers and alternatives, and how to evaluate the outcome once a decision regarding the correct answer to the problem has been chosen. Teaching students how to evaluate their own problem-solving processes can greatly improve ability. Some students need to be encouraged to broaden their perspectives regarding possible alternative solutions, others need to slow down and observe the information already provided in the problem, while still others need to be taught to move in sequence from one step to the next. The importance of the metacomponents or strategies will vary across cultures. Nevertheless, the ability to form heuristics to evaluate solutions to problems can have significant results for developing higher level cognitive skills (Sternberg, 1979; Sternberg, 1980).

Conclusion

Some cultures are so divergent from that of the mainstream U.S. that children from those cultures seem to have difficulty with the educational process within public school systems. Children from these cultures can benefit more from school attendance when cultural and linguistic procedures are used which facilitate their learning styles. Some suggestions for evaluating and instructing culturally and linguistically different children have been offered. These suggestions should not be interpreted to mean that all people who originate from culturally or linguistically different environments are in conflict with the public schools or that students from other cultures will necessarily not do well in school. Children from some cultures seem to do very well in school, and in fact, within a short period of time achieve a great deal. However, there is a large group of students who do not function as well. It is for this population that the suggestions have been targeted.

Information has been presented on the current state of the arts in the assessment and instruction of culturally different children. Adjustments in testing have been made. These include:

1. adjustment of norming scales for minorities
2. allowance of additional time for test completion
3. utilization of two or more languages for testing
4. testing for creativity of conceptual relationships

The area of test translation and linguistic and cultural uniqueness has been discussed. Factors to be considered in choosing and administering assessment tests are: (a) purpose of test, (b) how results of test will be used, (c) norming population, (d) dominance and proficiency, and (e) previous instruction. Techniques for enhancing concept acquisition include: (a) mathemagenics for directing learner attention to broad generalizations or specific culturally

relevant details, (b) learning through observation, (c) the use of the kinesthetic modality in combination with visual and auditory modalities and (d) developing heuristic methods for problem solving. Children cannot be thoroughly evaluated until they have had time to adjust to their new learning and living environments and have been taught learning strategies that will enable them to build linguistic, cultural and conceptual bridges from the previously known to the new.

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